

BIBLID 1133-1127 (2006) p. 191-204

Scientific Writing: A Universal or a Culture-Specific Type of Discourse?

Pedro Martín-Martín

Universidad de La Laguna

Studies of cross-cultural rhetorical variation, and how the influence of the culture and the linguistic and structural aspects of a person's L1 may affect his/her writing in an L2, are often labelled Contrastive Rhetoric research. This paper reviews the field of Contrastive Rhetoric (CR) with a special focus on academic/scientific and professional contexts. A revision of Kaplan's (1966) pioneering work in CR, and the subsequent criticism it has received, is followed by a comprehensive overview of how this area of research has evolved in recent years, and by a survey of the latest variables which are being considered in contemporary CR research. On the basis of the results obtained in these CR studies, this paper discusses the issue of whether scientific discourse is universal or whether it is culture-specific, i.e. governed by socio-cultural factors.

Introduction

It has been traditionally assumed that certain areas of culture are universal. Science is a case in point. According to Widdowson (1979: 61), there is a universal rhetoric of scientific exposition which “with some tolerance for individual stylistic variation, imposes a conformity on members of the scientific community no matter what language they happen to use”. The universality hypothesis implies that the methods and concepts of a science form a secondary cultural system, and that there are specific and characteristic discourse structures in technical and scientific communication. These modes of communication are assumed to apply to all scientific disciplines and are described as “scientific discourse”. Scientific discourse is, according to Widdowson, basically independent of its realization in a particular language.

To counter Widdowson’s claim, contrastive rhetoricians maintain that the discourse or rhetorical structures of scientific texts in different languages may vary greatly due to cultural influences. Research in Contrastive Rhetoric (CR) has revealed that it is not only markedly different cultures (e.g. English and Japanese) that vary in their discourse preferences, but also those cultures which have had frequent contacts and that share a common linguistic past (e.g. German, English and French). This paper overviews the field of CR research in academic, scientific and professional contexts, and discusses the issue of whether this type of discourse is universal or whether it is culture-specific.

Developments of CR studies

Studies of cross-cultural rhetorical variation, and how the influence of the L1 may affect the way individuals express themselves in an L2, are often labelled “Contrastive Rhetoric research”. As the term suggests, CR has been influenced, to some extent, by Contrastive Analysis (CA), the branch of applied linguistics which has traditionally been concerned with the analysis of pairs of languages at the levels of phonology, grammar and lexis (cf. James, 1980). A prime concern of CA was to establish aspects of the L1 that might result in interference or negative transfer to the L2. The view was that these phonological, syntactic and lexical features should in turn inform syllabus design. Contrastive Rhetoric, at least in its initial stages, built on the CA tradition, while extending the approach beyond the sentence level to the paragraph and the whole text.

Robert Kaplan was, in 1966, the first to articulate the notion of CR as a reaction to the narrowly sentence-bound perspective on which English as a Second Language (ESL) instruction was based at that time. Kaplan’s (1966) observed that although the existence of cultural variation was a factor which had been recognised in ESL teaching at the level of the sentence (i.e. grammar, vocabulary and sentence structure), foreign students who had mastered syntactic structures still struggled to produce adequate term papers, theses or dissertations. Some grammatically correct ESL texts still seemed to violate native English reader expectations at the discourse level, since native speakers of different languages produced what came to be regarded characteristic violations of the discourse norms of English. The thought patterns which native speakers and readers of English appeared to expect as an integral part of their communication was a sequence that was, according to Kaplan, dominantly linear in its development. Kaplan (1966) describes a typical English expository paragraph beginning with a topic statement which is then followed by a series of subdivisions of that topic statement, each in turn supported by examples and illustrations. These topic statements each relate explicitly to the central idea of the essay or paper. An alternative paragraph structure available to the English-speaking writer is one in which a series of examples is provided and then followed by a final topic statement. Kaplan believes that these two types of paragraph development represent the common *inductive* and *deductive* reasoning which the native English reader expects to be an integral part of any formal communication.

In order to compare English paragraph development with paragraph development in other languages, Kaplan analysed some 600 essays written in English by foreign students in the United States. On the basis of these analyses he identified four kinds of discourse structures that contrasted with English linearity, each of which he related with the following language groups:

- (1) Semitic languages, characterised by a complex series of parallel constructions, with the first idea completed in the second part.
- (2) Oriental languages, characterised by circularity, with the topic looked at from different tangents.
- (3) Romance languages, characterised by freedom to digress and the introduction of “extraneous” material.
- (4) Russian, similar to (3), but with different lengths, and parenthetical amplifications of subordinate elements.

This typology of languages has, however, received a great deal of criticism. Clyne (1987: 214), for example, claims that the issue of linearity versus digressiveness cannot be completely separated from grammatical considerations, that is, differences in the language structure may cause contrasts in the discourse structure. Thus he sees German participial clauses and left-branching constructions as contributing to digressiveness. Although Clyne acknowledges the importance of such features, he does not believe that they are decisive. He points to the fact that the tendency towards digressiveness in texts by French speakers, Italians and Russians, being speakers of languages structured very differently to German, suggests that it might be cultural determinants rather than linguistic typologies that underlie degree of linearity in discourse.

As regards Kaplan's description of Oriental languages, Mohan and Lo (1985) have disputed Kaplan's claim of the importance of indirectness in Chinese. They argue that both classical and modern Chinese styles taught at schools today favour a direct rather than an indirect expressive mode. These authors provide evidence of linearity from both classical and modern Chinese sources which, they claim, indicate very little difference between the discourse structure of English and Chinese. Furthermore, Hinds (1987) has also shown that there are significant differences in writing among related languages such as Japanese, Chinese, Thai, and Korean, which Kaplan had included in a single Oriental

group. Clyne (1987) too is unhappy with the rough grouping of disparate languages used by Kaplan and claims that the argument style of Saxonian (English) has less in common with Teutonic (German) than it does with Nipponic (Japanese). This suggests that rhetorical variation may reflect different intellectual styles or academic conventions learned in a specific culture.

As Connor (1996) has noted, Kaplan's (1966) early study is innovative since it reflects his interest in rhetoric and logic, interests which typically lay outside the scope of concerns of most ESL professionals whose training was primarily in linguistics. Kaplan maintained that logic and rhetoric are interdependent as well as culture specific:

Logic (...) which is the basis of rhetoric, is evolved out of culture; it is not universal. Rhetoric, then, is not universal either, but varies from culture to culture and even from time to time within a given culture (Kaplan, 1966: 2).

His view was based on the Sapir-Whorf hypothesis that suggests that linguistic structures condition thought and that it is this which accounts for discourse variation across cultures. While Kaplan was effectively building on what Connor (1996) terms "the weak version" of the hypothesis (i.e. language is influential but not a determining factor), he has nevertheless been much criticised for his reliance on Sapir and Whorf.

Söter (1988), for example, argues that the ways in which we express thought in writing are very strongly influenced by our experiences with discourse generally and written text specifically, and the related conventions that govern each of these within our own social and cultural contexts. Other authors such as Mohan and Lo (1985) attribute organizational problems in English academic writing by L2 learners to developmental factors rather than to interference from the first language. They argue that ability in rhetorical organization develops late even among writers who are native speakers of English and, because of this, ability is derived especially from formal education, that is, previous educational experience may facilitate or retard the development of academic writing ability. Leki (1991) argues that most students come to L2 writing with some previously learned discourse schemata which is the result of their experience of school. As he (Leki, 1991: 124) puts it: "writing, for most school children, is nearly always school sponsored and inevitably, therefore, reflects the culture of the school sys-

tem and reproduces culturally preferred discourse styles". Clyne (1987), Mauranen (1993) and Golebiowski (1998), among others, also consider that intercultural variation in the rhetorical preferences of writers may be promoted by the educational systems, and other factors such as the varying intellectual styles and attitudes to knowledge and content rather than the structure of a language.

Hinds (1990), while pointing to socio-cultural, historical, socio-political and situational constraints as the source of rhetorical differences across languages, proposes in his (1987) critique of Kaplan's first study a new typology of language based on speaker/writer responsibility as opposed to listener/reader responsibility. Hinds contends that in some languages, such as English, the person primarily responsible for effective communication is the speaker/writer while in other languages, such as Japanese or German (see, Clyne, 1987), it is the responsibility of the listener/reader to understand what it is that the speaker or writer had intended to say. In such reader-responsibility languages writing that is too explicit is not valued.

As we have seen, much of the direction later CR research has taken has been, explicitly or implicitly, a reaction to Kaplan's pioneering work. This early study, in its theoretical assumptions and its methodology (i.e. the use of L2 texts to arrive at descriptions of the supposed rhetoric of the writer's L1, the use of the paragraph as the unit of analysis, and a contrastive approach to data) has functioned as a model for many researchers, and inspired intense critical appraisal from others. In a more recent work, Kaplan (1987) has recognised many of the shortcomings of his 1966 paper, including the neglect of exophoric factors such as socio-linguistic and genre constraints on the production of written discourse.

A major focus of attention in recent CR work has been in the direction of empirical studies. This has, in turn, brought about an expansion in the parameters of CR research. Approaches such as the use of L1 data from languages other than English, exploration of the applicability of a variety of text analysis instruments, comparisons made between languages other than English as L1s and L2s, and analysis of texts of various genres all point to the increasingly sophisticated and complex nature of issues that current CR researchers are addressing in their work.

In the 1980s researchers turned to examining writers and writing in par-

ticular settings (e.g. Bazerman, 1988; Becher, 1989; Myers, 1989). These studies showed that writers' plans, goals and other process-based strategies are dependent on the particular purpose, settings and audiences. The concept of "discourse community" became an integral part of research into academic writing. Researchers in applied linguistics addressed the existence of conventions in the practices of discourse communities, and focused on how these conventions are learned in social contexts.

The 1990's saw the expansion of the Social Constructionist approach, which points to the linguistically mediated relationship between knowledge and the social context. The socio-constructionist approach to discourse analysis is the view that knowledge begins as an individual emotional response to a written text, which is then negotiated into communal knowledge to which all members of a discourse community freely assent. This implies that many aspects of academic texts can be explained by the social and cultural contexts from which those texts emanate. In this decade a great deal of research on CR began to focus on genre-specific texts. As Swales (1990) notes, it is not enough to describe text types (e.g. narrative, descriptive, argumentative) or situations (writing in certain discourse communities), but one also needs to consider the specific tasks and purposes of writing, that is to say, genre.

The enhanced research activity on genre-specific writing cross-culturally in recent years, as Connor (1996) notes, has led to a broadening in scope of the type of writing analysed to include a variety of school writing genres (e.g. essays written for narrative, reflective and persuasive purposes), as well as professional writing in academic and workplace situations such as the writing of research articles and grant applications. This is seen particularly in the increasing number of cross-cultural studies comparing English academic writing to other languages such as Chinese (e.g. Taylor & Chen, 1991), Finnish (e.g. Mauranen, 1993), Czech (e.g. ?mejrková, 1996), Polish (e.g. Duszak, 1997), Swedish (e.g. Melander, 1998), Spanish (e.g. Valero-Garcés, 1996; Moreno, 1997; Burgess, 2002; Martín-Martín, 2005), and many others.

The findings of these CR studies have revealed that the patterns of any language culture are complex and dynamic, responding to the interactions between discourse communities and individual writers over time and in varied contexts. This interactive approach to text involves factors relevant to the contextual environ-

ment (e.g. authorial intention, or cultural/educational background). Approaches to text analysis are thus increasingly multi-dimensional and interactive. More and more exophoric features are seen as intimately connected with the very notion of discourse production and reception across languages and cultures (Ostler, 2002).

The expanding discipline of CR is hence of considerable interest to the field of second language teaching, particularly to those involved in teaching composition and Languages for Specific Purposes. Apart from providing information about text structure preferences which are considered to represent successful communication across cultures, CR studies can also make students aware of the fact that specific difficulties in L2 writing derive from their own particular rhetorical tradition. In this regard, CR studies are particularly beneficial for novice writers. As Leki (1991: 138) points out, “the metacognitive awareness students can develop is one more step along the road to the realization that writing consists of making choices, an important insight for young writers to develop”.

Academic/scientific writing: a homogeneous phenomenon?

Although, as seen above, the idea that the differences in scientific textual patterns are linked to cultural variation seems attractive to some researchers, recent cross-cultural studies on specific genres have revealed that not all aspects of academic discourse are similarly influenced, but that there are certain aspects that are conditioned by genre in particular language groups. Mauranen (1993), for instance, in her analysis of metatext use in economics research articles written in English by Finnish and Anglo-American academics, found that Anglo-American writers use more metatext than Finnish writers. She assumes that, despite a relative uniformity of academic papers imposed by requirements of the genre in a particular discipline, there is significant intercultural variation in the rhetorical preferences of writers, as she considers that “writing is a cultural object that is very much shaped by the educational system in which the writer has been socialised” (Mauranen, 1993: 112). On the other hand, Moreno (1997), in her study of the use of cause-effect metatext in RAs written in English and Spanish in business and economics, found that the writers in both languages use similar metatextual strategies and with similar frequency. She concludes that, as regards

this rhetorical feature, the writing conventions of the RA genre are more powerful than the cultural peculiarities of the Spanish and the English-speaking communities, in as much as they are able to unify the nature of discourse patterns across languages. The results of these studies suggest that there are certain aspects of academic discourse which are more amenable to the restrictions of the writing conventions in a specific discipline and in a specific genre, and that this would tend to be universal, whereas there may be other aspects that are governed by socio-cultural factors, which are therefore culture-specific.

Taylor and Chen (1991) compared the introductions to papers written in a variety of related disciplines by three groups of scientists: Anglo-Americans writing in English and Chinese writing in English and Chinese. Their results revealed the existence of intracultural rhetorical variations that characterised the discipline rather than the language or nationality of the writers. As they (1991: 322) observe, “there is a culture of the discipline or sub-discipline that is international to a greater or lesser extent, and which finds expression in the rhetorical structure of the work written in that discipline”. Their findings thus suggest that a great deal of attention needs to be paid to the rhetoric of specific disciplines, rather than to broad generalizations about national rhetorical styles or universals.

Recent research on cross-cultural academic writing views scientific texts as reflecting the social relations between writers and readers. As Duszak (1997) puts it:

In reporting research, writers have options that are competing for access to code. By choosing some and rejecting others, they perform strategic acts of commitment: their decisions become explicable in terms of textual as well as interpersonal meanings in discourse (Duszak, 1997: 12).

Burgess (2002), for example, compared the published output of Spanish-speaking linguists writing in their first language and in English to that produced by English-speaking background writers. Her results showed that not all academics from the same national group exhibited a shared body of discourse norms. Instead, she found variation across all the groups of texts used in her study, thus indicating that there are other socio-pragmatic factors which may lead to variation in discourse structures, principally the relationship between writers and the

audience they address. As Mauranen (1993: 95) puts it, the rhetorical means available to a writer for realising his or her rhetorical objectives “are limited by the value and belief systems prevailing in the discourse community which constitutes the social context for the text”. Duszak (1997: 14) also points to the context of communication (the setting, the participants, their knowledge, beliefs, assumptions, and attitudes) as well as situation-specific rules of linguistic behaviour as factors that seem to influence the form of academic discourse.

Genre studies which seek to investigate the question of whether the structure of academic texts from the same discipline but from different languages follow language-independent or language- and culture-specific principles are still relatively lacking, despite their potential value in the teaching of languages for specific purposes. While there is still a good deal of controversy surrounding the specific role of the L1 in conditioning discourse-level patterns, there is little doubt that CR continues to provide a research framework and a number of insights that prove valuable to LSP teachers and materials designers.

WORKS CITED

- Bazerman, C.** (1988). *Shaping Written Knowledge: The Genre and Activity of the Experimental Article in Science*. Madison, WI: University of Wisconsin Press.
- Becher, T.** (1989). *Academic Tribes and Territories: Intellectual Enquiry and the Cultures of Disciplines*. Milton Keynes: SRHE and Open University Press.
- Burgess, S.** (2002). “Packed houses and intimate gatherings: Audience and rhetorical structure.” In Flowerdew, J. (ed.) *Academic Discourse*. Harlow: Longman. 196-215.
- Clyne, M.** (1987). “Cultural differences in the organization of academic texts”. *Journal of Pragmatics*. 11: 211-247.
- Cmejrková, S.** (1996). “Academic writing in Czech and English.” In Ventola, E. and A. Mauranen. (eds.) *Academic Writing: Intercultural and Textual Issues*. Amsterdam: John Benjamins. 137-153.
- Connor, U.** (1996). *Contrastive Rhetoric: Cross-cultural Aspects of Second Language Writing*. Cambridge: Cambridge University Press.

- Duszak, A.** (1997). "Cross-cultural academic communication: A discourse-community view." In Duszak, A. (ed.) *Culture and Styles in Academic Discourse*. Mouton de Gruyter: Berlin. 11-40.
- Golebiowski, Z.** (1998). "Rhetorical approaches to scientific writing: An English-Polish contrastive study". *Text* 18: 67-102.
- Hinds, J.** (1987). "Reader- versus writer responsibility." In Connor, U. and R. Kaplan. (eds.) *Writing across Languages: Analysis of L2-Text Reading*. Reading, MA: Addison-Wesley. 141-152.
- Hinds, J.** (1990). "Inductive, deductive, quasi-inductive: Expository writing in Japanese, Korean, Chinese, and Thai." In Connor, U. and M. Johns. (eds.) *Coherence in Writing: Research and Pedagogical Perspectives*. Alexandria, Virginia: Teachers of English to Speakers of Other Languages, Inc. 87-109.
- James, C.** (1980). *Contrastive Analysis*. Essex: Longman.
- Kaplan, R. B.** (1966). "Cultural thought patterns in intercultural communication". *Language Learning* 16: 1-20.
- Kaplan, R. B.** (1987). "Cultural thought patterns revisited." In Connor, U. and R. Kaplan. (eds.) *Writing across Languages: Analysis of L2-Text Reading*. Reading, MA: Addison-Wesley. 9-21.
- Leki, I.** (1991). "Twenty-five years of contrastive rhetoric: Text-analysis and writing pedagogies". *TESOL Quarterly* 25: 123-143.
- Martín-Martín, P.** (2005). *The Rhetoric of the Abstract in English and Spanish Scientific Discourse*. Bern: Peter Lang.
- Mauranen, A.** (1993). *Cultural Differences in Academic Rhetoric*. Frankfurt am Main: Peter Lang.
- Melander, B.** (1998). "Culture or genre? Issues in the interpretation of cross-cultural differences in scientific papers." In Fortanet, I., Posteguillo, S., Palmer, J. C. and J. F. Coll. (eds.) *Genre Studies in English for Academic Purposes*. Vol. 9 Filología. Universitat Jaume I: Col·lecció Summa. 211-226.
- Mohan, B. and W. Lo.** (1985). "Academic writing and Chinese students: Transfer and developmental factors". *TESOL Quarterly* 19: 515-534.
- Moreno, A.** (1997). "Genre constraints across languages: causal metatext in Spanish and English RAs". *English for Specific Purposes* 16: 161-179.

- Myers, G.** (1989). "The pragmatic of politeness in scientific articles". *Applied Linguistics* 10:1-35.
- Ostler, S.** (2002). "Contrastive Rhetoric: An expanding paradigm." In Flowerdew, J. (ed.) *Academic Discourse*. Harlow: Longman. 167-181.
- Söter, A.** (1988). "The second language learner and cultural transfer in narration." In Purves, A. (ed.) *Writing across Languages and Cultures. Issues in Contrastive Rhetoric*. Newbury Park, CA: Sage. 177-205.
- Swales, J. M.** (1990). *Genre Analysis: English in Academic and Research Setting*. Cambridge: Cambridge University Press.